

What is claimed is:

1. A micro-system comprising a stimulation applying means for applying stimulation to a liquid flowing in a liquid channel formed in a plate, the liquid flow being controlled by the stimulation from the stimulation applying means, wherein the stimulation applying means comprises a control means for electrically controlling an amount of stimulation applied to the liquid.
2. The micro-system according to claim 1, further comprising a stimulation detecting means for detecting the amount of stimulation, wherein said stimulation applying means is a heat source or a light source, and said stimulation applying means is controlled by said control means based on a signal from said stimulation detecting means.
3. The micro-system according to claim 2, wherein said heat source is a micro-heater.
4. The micro-system according to claim 2, wherein said stimulation detecting means is a heat sensor provided on said liquid channel.
5. The micro-system according to claim 4, wherein said heat sensor is a thermo-couple.
6. The micro-system according to claim 4, wherein said heat sensor is a heat sensitive semiconductor or an infrared ray sensitive sensor.
7. The micro-system according to claim 2, wherein said light source is at least one light emitting element installed in said plate.
8. The micro-system according to claim 7, wherein said light emitting element is embedded in said plate.
9. The micro-system according to claim 7, wherein said light emitting element is arranged outside said plate.
10. The micro-system according to claim 9, further comprising an optical guiding path for guiding a light from said light emitting element, said optical guiding path being formed horizontally with a surface of said plate in which said liquid channel is formed.
11. The micro-system according to claim 7, further comprising a plurality of light emitting elements.
12. The micro-system according to claim 1, further comprising:
 - an energy imparting means for imparting energy to said liquid; and
 - a change detecting means for detecting a change in a substance which causes a change by energy from said energy imparting means, wherein said stimulation applying means is controlled by said control means based on a signal from said change detecting

means.

13. The micro-system according to claim 12, further comprising an energy guiding path for guiding the energy from said energy imparting means, said energy guiding path being formed horizontally with a surface of said plate.

14. The micro-system according to claim 12, wherein said change detecting means is a fluorescence detecting element or a light receiving element.

15. The micro-system according to claim 14, wherein said fluorescence detecting element or said light receiving element is arranged horizontally with the surface of said plate.

16. The micro-system according to claim 14, wherein said fluorescence detecting element or said light receiving element is arranged above said liquid channel.

17. The micro-system according to claim 1, further comprising:

a stand for mounting said plate; and

a positioning means for deciding a position of said plate on said stand.

18. A matrix type variable liquid channel, comprising two or more stimulation sensitive members arranged on a plate in a pattern of a two dimensional matrix.

19. The matrix type variable liquid channel according to claim 18, wherein said stimulation sensitive members on said plate are arranged at certain intervals.

20. The matrix type variable liquid channel according to claim 19, wherein a size of each stimulation sensitive member ranges from 2 μm or more to 20 μm or less.

21. The matrix type variable liquid channel according to claim 19, wherein said stimulation sensitive members are arranged at intervals from 2 μm or more to 20 μm or less.

22. The matrix type variable liquid channel according to claim 19, wherein said stimulation sensitive members are formed by vapor deposition, sputtering, Chemical Vapor Deposition (CVD), plating, plasma polymerization, or screen-printing.

23. The matrix type variable liquid channel according to claim 18, wherein said stimulation sensitive member is stimulated by applying a voltage or irradiating a light thereto.

24. A matrix type variable liquid channel system comprising:

a matrix type variable liquid channel which comprises two or more stimulation sensitive members arranged on a plate in a pattern of a two dimensional matrix;

a detecting means for detecting a substance on said plate;

a stimulation applying means for applying stimulation to said stimulation sensitive members; and

a control means for controlling the stimulation applying means based on the

signal from said detecting means.

25. The matrix type variable liquid channel system according to claim 24, wherein said stimulation sensitive members on said plate are arranged at certain intervals.

26. The matrix type variable liquid channel system according to claim 25, wherein a size of each stimulation sensitive member ranges from 2 μm or more to 20 μm or less.

27. The matrix type variable liquid channel system according to claim 25, wherein said stimulation sensitive members are arranged at intervals from 2 μm or more to 20 μm or less.

28. The matrix type variable liquid channel system according to claim 25, wherein said stimulation sensitive members are formed by vapor deposition, sputtering, Chemical Vapor Deposition (CVD), plating, plasma polymerization, or screen-printing.

29. The matrix type variable liquid channel system according to claim 24, wherein said stimulation sensitive member is stimulated by said stimulation applying means applying stimulation thereto, said stimulation being application of voltage or irradiation of light.

30. A nano-aperture film, comprising a thin film which does not transmit light and in which at least one nano-aperture is formed.

31. The nano-aperture film according to claim 30, wherein said thin film is combined with a transparent plate.

32. The nano-aperture film according to claim 30, wherein a plurality of nano-apertures are provided and arranged at substantially equal intervals.

33. The nano-aperture film according to claim 30, wherein a maximum opening width of said nano-aperture is 200 nm or less.

34. A device for analyzing a biomolecular interaction comprising:

an excitation light generating means for generating excitation light;

a nano-aperture film which comprises a thin film which does not transmit light and in which at least one nano-aperture is formed, wherein a maximum opening width of said nano-aperture is smaller than the wavelength of said excitation light; and

a fluorescence detecting means for detecting fluorescence.

35. The device for analyzing a biomolecular interaction according to claim 34, wherein a plurality of nano-apertures are provided and arranged at equal intervals, and the interval between said nano-apertures is the same as the resolution of said fluorescence detecting means or larger than the resolution of said fluorescence detecting means.

36. A method of analyzing a biomolecular interaction, the method comprising the

steps of:

generating an evanescent field by an excitation light from a nano-aperture smaller than a wavelength of the excitation light;

exciting a fluorescent biomolecule which passes through a certain region of the evanescent field by Brownian motion; and

detecting fluorescence of the fluorescent biomolecule.

37. A method of analyzing a biomolecular interaction, the method comprising the steps of:

generating an evanescent field by an excitation light from a nano-aperture smaller than a wavelength of the excitation light;

exciting a first fluorescent biomolecule allowed to attach to the nano-aperture, and a second fluorescent biomolecule which is in a certain region of the evanescent field and interacts to said first fluorescent biomolecule; and

detecting fluorescence of these first and second fluorescent biomolecules, respectively.